SURFACE WATER AND AQUATIC HABITAT MONITORING ADVISORY COMMITTEE

The Committee's Report and Recommendations

Submitted to the
Washington State Department of Ecology

11 JANUARY 2007

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A NOTE ON BEHALF OF THE COMMITTEE

This report contains the consensus recommendations of the members of the Surface Water and Aquatic Habitat Monitoring Advisory Committee. The Committee agreed on the importance of coordinated regional monitoring, key mutual interests, and a proposed path forward.

The Committee is continuing an important piece of its work. It is gathering and analyzing information about eleven coordinated regional monitoring programs around the United States, and assessing them in terms of the interests that should be addressed by the governance structure and other elements of the Committee's proposed Puget Sound Basin Regional Monitoring Program. A second report containing this information will be issued no later than mid-February 2007.

It is the Committee's hope and expectation that this information will help expedite the development of the Puget Sound Basin Regional Monitoring Program's structure by providing a wealth of ideas that might be tailored and applied to the unique interests, needs and concerns of the Puget Sound Basin and of the program. Perhaps, too, this information might help those who develop the program avoid some of the mistakes that have been made as other coordinated regional monitoring programs elsewhere in the nation were structured or began to operate.

Jim Reid, The Committee's Facilitator
11 January 2007

SURFACE WATER AND AQUATIC HABITAT MONITORING ADVISORY COMMITTEE

The Committee Members:

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TABLE OF CONTENTS

THE RECOMMENDATIONS

The Surface Water and Aquatic Habitat Monitoring Advisory Committee members unanimously and strongly recommend:

1. Establish a new coordinated multi-party structure to collect, analyze, and disseminate credible and useful information about the Puget Sound Basin's freshwater, marine environments and aquatic habitat to strengthen policy and management decisions that affect the Basin.

2. Because there is an urgent need for and widespread interest in a coordinated regional monitoring approach in the Puget Sound Basin, the Puget Sound Basin Regional Monitoring Program should be established with "seed" funding provided in 2007 to initiate its development. The program should develop a framework that is capable of addressing questions in the following categories:

    a. What are the status and trends of surface waters and aquatic habitat in the Puget Sound Basin?

    b. Do surface waters and aquatic habitat meet water quality goals?

    c. If the goals are not being met, what are the reasons for that and what would it take to achieve them?

    d. How do we ensure monitoring is applicable and useful?

3. The State Legislature should allocate funding for the 2007-'09 biennium to ensure that sufficient resources, including staffing, are available to successfully start this program.

4. In addition to providing a framework to coordinate the collection, analysis, and dissemination of credible and useful information about surface waters and aquatic habitat, the Puget Sound Basin Regional Monitoring Program should be structured to:

    a. Attract the voluntary participation of parties who are interested in, affected by, or likely to benefit from monitoring of surface water and aquatic habitat in the Puget Sound Basin.

b. Build upon and implement the recommendations of existing policy and technical forums and programs, including, but not limited to, the State's Comprehensive Monitoring Strategy, the on-going work of the Governor's Monitoring Forum, the Puget Sound Partnership, and the Department of Ecology's requirements and expectations for monitoring by NPDES permittees.

c. Provide information that improves decision-making for public policy and aquatic resource management through more direct communication and connection between policy-makers and the scientific and technical community.

d. Assist regulators and the regulated to work collaboratively to ensure that monitoring-related regulatory requirements are consistent with the monitoring priorities identified by the regional monitoring program.

1. The Puget Sound Basin Regional Monitoring Program needs to be designed, organized, and focused to address these interests: a) facilitate multi-party collaboration; b) integrate disciplines and programs; c) improve policy and management decisions; d) produce information that is useful and readily accessible; e) achieve monitoring-related mandates; f) recognize jurisdictions' unique interests and obligations; g) strengthen the credibility, trust, and transparency of monitoring activities and the data generated from them; h) develop consistency in data collection and reporting; i) ensure flexibility to adjust to changing needs; j) be cost-effective and efficient; k) rely on incentives to secure participation and funding; and l) ensure early successes in the program's initial efforts.

2. To increase the likelihood of widespread participation in and support for the program, parties that could affect or be affected by it need to be involved in making decisions about the organizational structure and initial scope of work of the Puget Sound Basin Regional Monitoring Program. At a minimum, representatives of the following parties should participate: a) federal government agencies; b) state government agencies; c) regional and local government agencies, including intergovernmental planning groups that address water and habitat issues; d) Tribes and tribal groups; e) businesses and business associations; f) commercial shellfish and aquaculture groups; g) environmental advocacy groups; h) academic and scientific institutions and associations; i) non-governmental organizations, including volunteer groups, that are addressing similar or related issues; and j) non-profit organizations and foundations.

3. The Department of Ecology should convene and initially chair the Puget Sound Basin Regional Monitoring Program. Decisions about how the program is managed, organized, and staffed should be made by those who develop the organizational structure and who commit to implementing its objectives.

THE EXECUTIVE SUMMARY

Representatives of twenty-four public and private organizations met between September and December 2006 to discuss the need for and components of a regional monitoring program for surface waters and aquatic habitat. The Surface Water and Aquatic Habitat Advisory Committee members quickly reached agreement that there is a need for and interest in coordinated regional monitoring throughout Washington State. The Committee also reached consensus that initially the joint monitoring program needs to focus on the Puget Sound Basin before being extended throughout or replicated elsewhere in the State.

Increasing interest in coordinated monitoring efforts is reflected in recent recommendations from forums such as the Puget Sound Partnership and Shared Strategy for Puget Sound. The Committee's recommendations are intended to integrate, coordinate, and expand existing programs and initiatives that currently address freshwater or marine environments of the Puget Sound Basin. The recommendations build upon the existing monitoring direction and coordination efforts of and the lessons learned by the Governor's Monitoring Forum, the Salmon Recovery Funding Board, the Puget Sound Assessment and Monitoring Program (PSAMP), and others. They also are intended to help increase the likelihood that a Puget Sound Basin-wide program that successfully coordinates regional monitoring activities will eventually lead to the efficient and cost-effective expansion or replication of the program across the State.

In addition to providing a framework to coordinate the collection, analysis, and dissemination of credible and useful information about surface waters and aquatic habitat, the Committee's recommendations call for structuring a Puget Sound Basin Regional Monitoring Program to achieve the following goals:

1. Attract the voluntary participation of parties who are interested in, affected by, or likely to benefit from monitoring of surface water and aquatic habitat in the Puget Sound Basin.

2. Build upon and implement the recommendations of existing policy and technical forums and programs, including, but not limited to, the State's Comprehensive Monitoring Strategy, the on-going work of the Governor's Monitoring Forum, the Puget Sound Partnership, and the Department of Ecology's requirements and expectations for monitoring by NPDES permittees.

3. Provide information that improves decision-making for public policy and aquatic resource management through more direct communication and connection between policy-makers and the scientific and technical community.

4. Assist regulators and the regulated to work collaboratively to ensure that monitoring-related regulatory requirements are consistent with the monitoring priorities identified by the regional monitoring program.

To expand on these goals, the Committee believes that on a participation spectrum ranging from "participation is completely voluntary" to "participation is required," the stakeholders' participation in the Puget Sound Basin Regional Monitoring Program needs to be closer to completely voluntary. If it is focused on a few specific and meaningful priorities or projects at the outset, its initial successes will attract key parties and players in monitoring, and over time they will see that it is in their best interests to participate. In other words, the Committee wants this program to become a magnet for collaboration, coordination, communication, creativity, and trust.

This vision will become reality if the program is not only voluntary but flexible and dynamic. It must be flexible enough to allow jurisdictions and organizations to participate at various levels or according to different topics of interest. It must be flexible enough to incorporate and integrate existing programs and forums, including but not limited to the Comprehensive Monitoring Strategy, PSAMP, and the Governor's Monitoring Forum. It also needs to create a dynamic relationship between policy-makers and technical experts so that the results of monitoring—the information generated and the analysis offered—become cornerstones in the policy decisions and management actions that give future generations a healthy Puget Sound Basin.

WHY COORDINATED REGIONAL MONITORING IS NECESSARY AND URGENT

Monitoring done well provides information that is thoughtfully considered by decision-makers as they develop, adopt, or refine public policy. Exemplary local monitoring programs exist throughout the Puget Sound region. However, they are often efforts designed to help shape local policies and direct local management decisions. While of potential interest to the State, region and other jurisdictions, their development in isolation and with a local focus means that we cannot expect these efforts to help us gain a broad perspective or picture of the health of the Puget Sound at a time when we so greatly need one. The need and desire for a more complete picture is a major impetus for the growing interest in a coordinated regional approach to monitoring.

Other reasons why coordinated regional monitoring appears to be more necessary and urgent today than ever are:

1. An increasing number of organizations, both public and private, are required to monitor their activities and the environment. The costs of these monitoring programs are considerable to each organization, and it is believed that efficiencies and economies of scale could be realized by coordinating efforts.

2. Regional monitoring could fill in the geographic and informational "gaps" that are created when local or individual monitoring efforts are not coordinated. Furthermore, independent monitoring efforts can lead to contradictory data and conclusions due to differing protocols based on study goals.

3. Reporting and monitoring protocols could become more uniform and data more comparable and credible as more parties share and blend their expertise, protocols, and methodologies.

4. A regional approach is more likely to produce information and findings that are more meaningful and relevant to a larger audience, including elected officials and the public-at-large in the Puget Sound Basin.

5. A regional program that convenes regulatory agencies with those they regulate is likely to facilitate a greater shared understanding, cooperation, and trust between these entities that often have competing interests.

6. By raising the profile of monitoring, the regional program should increase the credibility of and attention to the information it produces. It should also increase accountability for the expenditure of funds necessary to generate the information. The regional monitoring program might even contribute to greater accountability in the policy decisions and management actions necessary to achieve successes in conserving, protecting, and restoring the Puget Sound Basin.

The opportunity to more efficiently gather credible and relevant monitoring data leads the Committee to unanimously and strongly recommend the establishment of a coordinated Puget Sound Basin Regional (i.e., interjurisdictional) Monitoring Program.

The Committee recommends that initially the program be focused on the Puget Sound Basin for these four reasons:

1. Interjurisdictional management of Puget Sound and its watershed and tributary surface waters is currently a priority of the State of Washington and a coalition of public and private interests in the region.

2. Forums and programs focusing on some aspects of monitoring fresh and marine waters in the Puget Sound Basin already exist and provide a foundation upon which to build a more coordinated interjurisdictional program.

3. Active participants in the Committee were predominantly from the Puget Sound region.

4. Successful efforts elsewhere demonstrate the value of starting small, thereby affording an opportunity for the lessons learned from a successful Puget Sound Basin Regional Monitoring Program to more efficiently and cost-effectively establish similar programs throughout the State.

STATE GOVERNMENT IS WELL POSITIONED TO LEAD THE WAY

A regional monitoring program has already been identified as a goal by the State in discussions about the new municipal stormwater permits and by the counties, cities, and citizens of the Puget Sound Basin. Thus, the Committee believes it is in the State of Washington's interest to help launch the program. **The Committee recommends that the State Legislature allocate funding for the 2007-'09 biennium to ensure that sufficient resources, including staffing, are available to successfully launch it.**

Because this proposed program requires development of a formal organizational structure and a negotiated long-term vision or scope of work, and because local jurisdictions are devoting their limited monitoring-dedicated resources to working to comply with existing federal and state requirements, counties and cities would be in a difficult position to initiate such an effort. Furthermore, a State investment would likely be attractive in leveraging federal, regional, local, and private investments to help build and expand the program. Therefore, the Committee strongly encourages the State take the initial leadership role in convening this effort and providing the funding necessary to facilitate the development by interested and affected parties of an organizational structure, an initial scope of work, and an implementation plan that outlines the region's monitoring priorities.

In addition, the Committee believes that the Department of Ecology is well positioned to convene and initially chair the regional monitoring program's development efforts until the parties decide the program's governance structure, including decisions regarding how the program is managed, facilitated, and staffed.

THE ELEMENTS OF A SUCCESSFUL REGIONAL MONITORING PROGRAM

To address the needs, concerns, and interests of stakeholders throughout the Puget Sound region, including the State of Washington, the Puget Sound Basin Regional Monitoring Program needs to:

1. Achieve the four goals contained in Recommendation 4 (pages 1-2).

2. Address the interests identified in Recommendation 5 (page 2) and more specifically defined in the "Mutual Interests" chapter of this report (page 7).

3. Answer the broad "framework" questions listed in Recommendation 2 (page 1).

4. Invite the participation of *at least* the parties listed in Recommendation 6 (page 2).

5. Demonstrate that its findings are useful and credible.

6. Demonstrate that the expenditure of funds in pursuit of those findings is fiscally prudent.

THE RELATIONSHIP OF THE RECOMMENDATIONS TO EXISTING EFFORTS

One question the Committee discussed as its recommendations emerged was how its findings, interests and recommendations relate to the on-going efforts of existing groups that also address monitoring. The Committee believes that the proposed Puget Sound Basin Regional Monitoring Program would complement and help fulfill the goals and objectives of two existing efforts designed to coordinate environmental and water quality monitoring, the Puget Sound Assessment and Monitoring Program and the Governor's Monitoring Forum.

The Puget Sound Action Team's Puget Sound Assessment and Monitoring Program (PSAMP) is designed to coordinate long-term monitoring and selected research efforts of several federal, state, and local agencies. State agencies involved in PSAMP are the departments of Ecology, Fish and Wildlife, Health, and Natural Resources. The other participants include the U.S. Fish and Wildlife Service, NOAA Fisheries, the King County Department of Natural Resources, and the University of Washington.

PUGET SOUND ASSESSMENT AND MONITORING PROGRAM

PSAMP's 2005-'07 strategy is to:

1. Conduct research and monitoring activities to improve the scientific understanding of the Puget Sound ecosystem and evaluate the effectiveness of environmental resource management programs.

2. Collaborate with academic and scientific institutions, local and tribal governments, and citizen monitoring groups to ensure interdisciplinary efforts use consistent and efficient data management, sampling, and analysis protocols.

3. Provide information to citizens, government leaders, and resource managers.

The Committee's recommendations are consistent with this strategy, and offer a specific regional structure to facilitate the coordination of monitoring efforts among local, regional, state, and federal agencies, private businesses, and advocacy and public interest groups. The Committee did not discuss replacing PSAMP but rather finding ways to complement and work with PSAMP at this time. Further discussion of the roles of different state programs is needed in the next phase of the development of the Puget Sound Basin Regional Monitoring Program.

GOVERNOR'S FORUM ON MONITORING

The Governor's Forum on Monitoring Salmon Recovery and Watershed Health includes twenty agencies. Eleven participants are Washington State agencies or boards: the departments of Agriculture, Ecology, Fish and Wildlife, Health, Natural Resources, and Transportation; the Conservation Commission; the Governor's Salmon Recovery Office; the Interagency Committee for Outdoor Recreation; the Puget Sound Action Team; and the Salmon Recovery Funding Board. Five federal agencies are also members: NOAA Fisheries; the U.S. Environmental Protection Agency; the U.S. Fish and Wildlife Service; the U.S. Forest Service; and the Northwest Power and Conservation Council. The additional members are the: Lead Entity Advisory Group; Lower Columbia Fish Recovery Board; Northwest Indian Fisheries Commission; and the Regional Fisheries Enhancement Advisory Group.

The Forum's goal is to coordinate state government monitoring efforts associated with salmon recovery and watershed health. The Forum has developed a list of specific tasks to meet this goal:

- Provide a multi-agency venue for coordinating technical and policy issues and actions related to monitoring.
- Recommend biennial reporting of monitoring results and progress in watershed health and salmon recovery.
- Foster integrated analysis and reporting of monitoring information.
- Provide monitoring recommendations to appropriate state agencies.
- Develop a broad set of easily understood measures to convey results and progress.
- Encourage federal, tribal, regional, and local partners to standardize measures and indicators.
- Coordinate with local and regional watershed and salmon recovery groups.

The Committee's proposal to establish a Puget Sound Basin Regional Monitoring Program is consistent with these goals and tasks. The monitoring program would provide the coordinated regional structure by which the tasks identified by the Forum are implemented.

The proposed Puget Sound Basin Regional Monitoring Program could potentially serve as a regional implementing body to conduct actual on-the-ground monitoring and research tasks consistent with both PSAMP and the Governor's Monitoring Forum. Coordination among these bodies will remain important to ensure alignment of strategic priorities. Assuming that coordination is effective, a Puget Sound Basin Regional Monitoring Program would complement the efforts of both PSAMP and the Governor's Monitoring Forum.

MUTUAL INTERESTS

As part of the process of determining whether or not there is a sufficient need for and interest in establishing a coordinated regional monitoring program for the Puget Sound Basin, the Committee identified what it believes are the mutual interests of the key stakeholders. By doing so the Committee reached consensus that there is both the need for and interest in establishing such a program. The mutual interests that the Committee defined are:

- **FACILITATE MULTI-PARTY COLLABORATION**:

  Coordinate and leverage the knowledge, expertise, and resources of local, state, and federal agencies and the private sector to jointly conduct and assess the results of monitoring surface waters and aquatic habitat.

  Help regulators and those they regulate work more collaboratively to ensure that monitoring-related regulatory requirements are understood and supported by those who must address them.

  Create and enhance opportunities for direct communications and connections between policy-makers, the scientific and technical community, and the public-at-large about monitoring data and findings.

- **INTEGRATE DISCIPLINES AND PROGRAMS**:

  Integrate disciplines such as hydrology, hydraulics, chemistry, biology, toxicology, and geology, and programs such as stormwater, groundwater, and wastewater, that are affected by regulatory acts such as the Endangered Species Act, the Shoreline Management Act, and the Clean Water Act, and other water-related management and regulatory programs and laws.

- **IMPROVE POLICY AND MANAGEMENT DECISIONS**:

  Use the results of regional monitoring efforts to improve the quality of policy and management decisions.

  With these results, provide a common foundation for the shared vision that clearly articulates what we are trying to achieve and why with monitoring and work programs. In addition, develop mutual interests for policy or management decisions that frame and guide scientific/technical discussions and investigations.

- **PRODUCE INFORMATION THAT IS USEFUL AND READILY ACCESSIBLE**:

  Regional monitoring should focus on producing information that is useful, applicable, and comparable. The program should, therefore, assist in guiding us in making the right decisions about protection and restoration priorities and funding decisions.

  The information should be accessible to individual organizations and the public as well as to interjurisdictional or public-private initiatives, and should enable us to gain a greater perspective on conditions, causes, and solutions.

- **ACHIEVE MONITORING-RELATED MANDATES**:

  Conduct regional monitoring to achieve federal and state mandates while addressing the key "big picture" questions about the health of the Puget Sound Basin. Ensure that applicable permit-required monitoring is aligned with the context of and priorities identified by the regional monitoring framework.

- **RECOGNIZE JURISDICTIONS' UNIQUE INTERESTS AND OBLIGATIONS**:

  As we develop and strengthen collective efforts through regional monitoring, recognize that jurisdictions need to address their unique individual interests and obligations and, therefore, need to retain autonomy and authority.

- **STRENGTHEN THE CREDIBILITY, TRUST AND TRANSPARENCY OF MONITORING ACTIVITIES AND THE DATA GENERATED FROM THEM**:

  Whatever monitoring (including collecting and analyzing data and information) is conducted, it must be credible in the eyes of policy-makers, technical experts, and the public.

  In addition, the activities undertaken should be performed in a way that enables the stakeholders (e.g., decision-makers and the public) to trust that we are wisely investing resources and making a difference in improving both water quality and the protection and preservation of fish and wildlife habitat.

  To ensure that the regional monitoring program is accountable, credible, and helps build trust, the processes by which it is conducted must be transparent.

- **DEVELOP CONSISTENCY IN DATA COLLECTION AND REPORTING**:

  Through the regional monitoring program, achieve more consistent standards, protocols, practices, and methodologies related to monitoring, analysis, and recording.

- **ENSURE FLEXIBILITY TO ADJUST TO CHANGING NEEDS**:

  Gear each project to the specific issues, problems, and challenges, identifying who needs to be involved to address and resolve them.

  The organizational structure and decision-making processes of the regional monitoring program needs to be flexible to allow for or accommodate changes in scope as the program matures, gains credibility and support, and expands.

- **COST-EFFECTIVE AND EFFICIENT**:

  By improving coordination, avoid unnecessary duplication of effort, thereby helping to use limited resources as efficiently and effectively as possible.

- **RELY ON INCENTIVES TO SECURE PARTICIPATION AND FUNDING**:

  Rely on incentives as well as regulations and requirements to ensure that we achieve our vision, interests and goals.

- **ENSURE EARLY SUCCESSES IN THE PROGRAM'S INITIAL EFFORTS**:

  Start at a scale both geographically and substantively that enables the program to achieve "early" success before expanding or replicating it across Washington State, or before addressing and undertaking more complex issues or projects within the Puget Sound Basin.

THE "FRAMEWORK" QUESTIONS

The Committee recommends that the Puget Sound Basin Regional Monitoring Program should develop a framework that is capable of addressing questions in the following categories:

1. What are the status and trends of surface waters and aquatic habitat in the Puget Sound Basin?

2. Do surface waters and aquatic habitat meet water quality goals?

3. If the goals are not being met, what are the reasons for that and what would it take to achieve them?

4. How do we ensure monitoring is applicable and useful?

The Committee also identified more detailed questions under each category to help focus the work of developing the Puget Sound Basin Regional Monitoring Program. They are:

1. *What it is and how it is changing:* **What are the status and trends of surface waters and aquatic habitat in the Puget Sound Basin?**

    a. What monitoring is currently being done to determine status and trends? Who is doing it? Is the monitoring the result of regulatory directives or is it being done voluntarily? Does that have any impact on the direction of studies (i.e., are the study designs inherently creating bias)?

    b. Does the data we have accumulated or are currently collecting answer the questions for which the project/study was initiated?

    c. In light of current monitoring efforts and how they are being done, is there scientific monitoring that is not currently being done that should be done to determine status and trends of surface water and aquatic habitat in the Puget Sound Basin? What would it take to do it? Should it be done differently in light of current protocols and factors outside our control?

    d. What process or criteria will help us prioritize the monitoring that needs to be done?

e. Are other tools or data management processes needed and/or available to more effectively and efficiently determine status and trends?

The Committee suggests that "status and trends" of what, where and when is defined by any one or a combination of the following:

Parameters: weather, flow/water level, temperature, oxygen, N/S, TSS/solids, metals, organics, toxicity, fish populations, habitat, macro-invertebrates, bacteria, bioassay, human health factors, consumption.

Media: surface water, groundwater, stormwater, sediment, tissue, air or soil.

Timeframes: short- vs. long-term, trends in wet weather/storms, dry weather, annual or seasonal weather, day vs. night.

Geography: lowlands vs. uplands, urban vs. rural, fresh vs. marine, jurisdictional, water body vs. every reach.

2. *Progress in meeting goals:* **Do surface waters and aquatic habitats meet water quality goals?**

   a. What are the goals and standards? (Fishable, swimable, etc. for all water bodies?)

   b. Are scientifically appropriate performance standards available to help determine success in achieving the goals and standards?

   c. Does the data we have accumulated or are currently collecting answer the questions for which the project/study was initiated to answer?

   d. Is the monitoring that is being done facilitating the determination of whether or not we are meeting the goals and standards?

3. *If not, why not:* **If the goals are not being met, what are the reasons for that and what would it take to achieve them?**

   a. What are the sources and characteristics of the problem(s)?

   b. Are we doing appropriate compliance, effectiveness or performance monitoring?
      - Temporal
      - Spatial
      - Gaps in our knowledge

   c. Are the tools and resources at our disposal sufficient to accurately determine why the goals and standards are not being met? If not, what additional tools and resources are needed to make that determination?

d. What would it take to meet the goals and standards?

4. *Practical application of monitoring:* **How do we ensure monitoring is applicable?**

   a. How do we ensure that the processes and means by which we conduct regional monitoring support and help achieve our interests and goals?

   b. How do we consistently perform and apply effective, defensible and scientifically powerful monitoring regionally? And how can we most effectively and efficiently share the information that results from monitoring so that it is accessible and understandable to everyone in the region who needs it?

   c. How do we ensure that monitoring helps determine whether or not management strategies are successful? How can we measure the success or failure of our management strategies to ensure efforts are resulting in improvements?

   d. How do we identify and analyze potential alternative management strategies in light of the results of our monitoring?

   e. How are changes in management structure reflected in the monitoring that we are conducting? How does monitoring assist in reviewing goals and standards, actions and technologies?

   f. How do monitoring efforts and results assist in revising goals and standards, actions and technologies?

KEY STAKEHOLDERS

As noted earlier in this report, the Committee consisted of representatives of twenty-four public and private jurisdictions, including representatives of government agencies at the federal, state and local levels. Committee members recognized that all parties who were needed were not available. When taking the next steps, the parties who were not previously available must also be involved.

To increase the likelihood of widespread participation in and support for a Puget Sound Basin Regional Monitoring Program, parties that could affect or be affected by it need to be involved in making decisions about the organizational structure and initial scope of work of the Puget Sound Basin Regional Monitoring Program. At a minimum, representatives of the following entities should participate: a) federal government agencies; b) state government agencies; c) regional and local government agencies, including intergovernmental planning groups that address water and habitat issues; d) Tribes and tribal groups; e) businesses and business associations; f) commercial shellfish and aquaculture groups; g) environmental advocacy groups; h) academic and scientific institutions and associations; i) non-governmental organizations, including volunteer groups, that are addressing similar or related issues; and j) non-profit organizations and foundations.

The Committee offers a more detailed listing of organizations that should be involved in developing the governance structure and work plan based on the experience of this first round of discussions. This is not intended to be a complete list. The Committee recommends that it would be wise to err on the side of being more inclusive; "cast a wide net" to involve more rather than fewer stakeholders. Over time they can decide whether or not it is in their best interests to participate, and what level of involvement meets their interests.

STATE GOVERNMENT AGENCIES:

- Department of Ecology
- Department of Transportation
- Puget Sound Action Team
- Department of Fish and Wildlife
- Department of Natural Resources
- Department of Health
- Governor's Salmon Recovery Office
- Interagency Commission on Outdoor Recreation

FEDERAL GOVERNMENT AGENCIES:

- Environmental Protection Agency (EPA)
- NOAA Fisheries
- US Geological Service (USGS)
- National Park Service
- US Fish and Wildlife (USFW)
- US Forest Service (USFS)

LOCAL GOVERNMENT AGENCIES:

- Cities and Counties covering the 19 WRIAs of the Puget Sound Basin
- County and City Health Departments
- WRIA planning groups
- Ports

TRIBES:

- NW Indian Fisheries Commission
- Individual Tribes

PRIVATE INDUSTRY:

- Association of Washington Business (AWB)
- Association of General Contractors (AGC)
- Puget Coast Shellfish Growers' Association (PCSGA)
- Puget Sound Processors' Association (PSPA)
- South Sound Aquaculture and other Aquaculture groups
- The Farm Bureau
- Private consulting firms

ADVOCACY GROUPS:

- People For Puget Sound
- Shared Strategy for Puget Sound
- National Wildlife Federation
- Puget Soundkeepers Alliance
- Washington Trout

CRITERIA TO EVALUATE ORGANIZATIONAL ALTERNATIVES

As this report is submitted to the Department of Ecology, the Committee continues to research coordinated regional monitoring organizations in Washington State and throughout the nation to understand the context for their establishment, their key features, and their strengths and weaknesses.

The Committee expects that the stakeholders involved in developing the organizational structure for the Puget Sound Basin Regional Monitoring Program may find elements in existing programs or entities that could be used, thus saving time and resources in launching the program and, perhaps, helping the Puget Sound Basin's program avoid some pitfalls that other similar programs have encountered.

The findings of the Committee's analysis of similar coordinated monitoring programs will be added to this report in late January or early February 2007, at which time the report will be final.

THE COMMITTEE'S PROCESS

The Surface Water and Aquatic Habitat Monitoring Advisory Committee was established in late summer 2006 as the result of numerous conversations about the idea of and opportunities for regional monitoring in the Puget Sound area and Washington State.

Staff from counties and cities seeking coverage under the National Pollutant Discharge Elimination System (NPDES) municipal stormwater permits from the Washington State Department of Ecology (DOE) discussed how joint stormwater monitoring might assist them in cost-effectively meeting monitoring-related permit requirements. The work of the Governor's Monitoring Forum and the Puget Sound Partnership heightened interest in monitoring. Advocacy groups proposed interjurisdictional monitoring as an avenue for helping policy-makers more clearly and accurately measure the conditions of Puget Sound and the water bodies that drain into it, identify water-related problems and their sources, and assess the effectiveness of regulatory programs. Finally, Ecology, stimulated by a grant from the U.S. Environmental Protection Agency (EPA), concluded that the time had come for more formal, direct discussions among all these parties and others.

In August 2006 the Committee's process started to take shape. The Committee's purpose was to determine the level of interest in regional monitoring of surfaced waters and aquatic habitat, and, if high, articulate why regional monitoring is necessary at this particular time and define the elements of an effective regional monitoring program.

Committee members first met on 19 September 2006. The Committee met five times between September and December before reaching agreement on the recommendations presented in this report. In addition, the group used three subcommittees to discuss specific issues more deeply and draft recommendations for the Committee's consideration. A workshop in Tacoma on 19 October 2006 that was sponsored by DOE, organized and managed by People For Puget Sound, and attended by nearly 150 people, showcased three approaches to regional monitoring in California and added valuable information to the Committee's deliberations.

Comprising the Committee were representatives of twenty-four public, private and not-for-profit organizations. Because a number of parties who should be involved in the establishment of a regional monitoring program could not participate because of limited staffing (among them the City of Seattle and the Northwest Indian Fisheries Commission), the Committee has included in this report a recommendation about defining the interests that need to be represented at the table in the next round of discussions, when the governance structure of a regional monitoring program and a scope of work are created.

APPENDIX A:
CURRENT MONITORING EFFORTS

Federal, and state agencies, local governments, tribes, private concerns, and volunteer groups conduct environmental monitoring at hundreds of sites throughout Washington. While the committee did not carefully catalog existing programs, it recognized that there are many monitoring programs and coordinating efforts currently in progress around Puget Sound and the state. These include, but are not limited to, efforts by local jurisdictions, the Governor's Forum on Monitoring, the Salmon Recovery Funding Board, the Ecology NPDES stormwater permit program, the Puget Sound Shared Strategy, and the Puget Sound Partnership. Some summaries of monitoring efforts have been recently compiled and are provided in the following documents:

State agencies that regularly monitor surface waters and aquatic habitat include the Departments of Natural Resources, Ecology, Fish and Wildlife, the Washington State Conservation Commission, and the Interagency Committee for Outdoor Recreation. These five agencies collaborated to write the *Report to the Office of Financial Management Concerning Monitoring Programs and Associated Databases* published on 2 October2006. This report describes the monitoring programs conducted by five state agencies. Tables in the five appendices give detailed information about individual programs.To access this report, please follow the link:

http://iac.wa.gov/Documents/Monitoring/OFM_Final_Monitoring_Report.pdf

In 2003 The Interagency Committee for Outdoor Recreation (IAC) surveyed monitoring programs across Washington. The survey report includes municipal, tribal, volunteer, and other local monitoring efforts. Although the appendix describes over 70 programs, this inventory is not comprehensive. The IAC acknowledges that the survey did not locate many monitoring programs. Readers should regard this report as a small sampling of current monitoring efforts. To view an abridged document including only survey results for Puget Sound Basin monitoring programs, please follow this link.

http://www.ecy.wa.gov/programs/wq/swahm/ps_monitoring_appendix.pdf

To view the IAC's 2003 *Survey of Environmental Monitoring Programs and Associated Databases within Washington State* in its entirety, please follow this link.

http://iac.wa.gov/Documents/SRFB/Monitoring/Environmental_Monitoring_Survey.pdf

In addition to the programs included in these summaries, there are also monitoring efforts by local governments, federal agencies, businesses, environmental organizations, and others that were not catalogued in these reports.

In spite of the diversity and extent of these monitoring programs, there are gaps in critical information for policy and management actions. There are also problems sharing information because of different protocols and sampling designs, spatial extent, and other technical problems that arise when trying to compile data from disparate, individual monitoring efforts.

APPENDIX B:

THE SUMMARY OF THE OCTOBER 19TH, 2006 REGIONAL WATER QUALITY MONITORING WORKSHOP

October 19, 2006
Tacoma Washington
Notes compiled by Scott Redman, Melanie Forster and Heather Trim

Welcome and Introductory Remarks by Senator Phil Rockefeller

Senator Rockefeller discussed the interplay of various government efforts. Specifically he mentioned:

- Transportation Permitting Efficiency Advisory Committee (TPEAC) – major transportation projects – water impacts account for 80-90% of impacts from these projects.
- Need to connect the dots between permitted agencies' monitoring projects and environmental effects
- Need to look collectively at the common landscape and take a Watershed approach
- Important NPDES (National Pollutant Discharge Elimination System) Phase I and Phase II stormwater permits will be issued by the WA Department of Ecology in December
- The Governor's Puget Sound Partnership is about to release their recommendations which include the following items of interest to this workshop:
    - Reduction of toxics in fresh and marine waters
    - Active stormwater management programs in 80% of communities/affecting 80% of population
    - "Implement a coordinated water quality monitoring program" that involves stakeholders and looks at larger impacts on Puget Sound and freshwater

Introduction to the WA Department of Ecology's Regional Monitoring Advisory Committee by Melodie Selby (WA Department of Ecology)

Melodie described the new Advisory Committee that is forming to look at coordination of urban receiving water monitoring – the committee will try to investigate:

- What would joint monitoring look like?
- How will we know it's effective?
- What should be in? What should be out?

- What have others already done?

Ecology requested EPA funds to work on establishing a joint monitoring consortium. Some of the goals for the overall effort are:

- Important to involve stakeholders and not be dictated by Ecology
- Have people work together since many of us are monitoring. In the past budget cycles, etc. have made this difficult
- Ask the governor to include a budget request to continue this

Melodie concluded by stating that "Today is a resource information collection effort – what can we learn from their experiences? What can we extrapolate/apply here in WA? Today is also about conversation – what did we get out of the California models? What challenges do we see in WA? How can we tackle those as we move forward?"

The Featured Speakers

STEVE WEISBERG
Executive Director, Southern California Coastal Waters Research Project

What is SCCWRP?

- Joint powers agency founded in 1969 – e.g., similar to a regional fire department
- Founded by multiple organizations with a common mission, including both regulators and regulated agencies
- Offers unique opportunity for neutral science that is delivered for these various users
- Offers a forum for the partners to work together on a collaborative path
- Is a neutral scientific organization – do science and quickly infuse it into management
- Non confrontational opportunity for different stakeholders to interact
- Work is not policy, regional or site specific – rather focuses on new models, new indicators, etc – so no one is on the spot

Monitoring program overview

- Previously, most of investment was not delivering useful information – 2% was being monitored; different methods, no Quality Assurance (QA), no integration of data management; no one could put results into context.
- The biggest problem was that the data was collected on a site-specific basis and therefore one couldn't answer the most basic questions. Each of the site specific efforts were written by different people and measuring different constituents.
- Regional monitoring work makes up about 20% of SCCWRP's work
- In 1997 they spent $31 million ($24 million by permittees + 3.1 by feds + 1.9 by universities +1.3 by state?) for overall program
- Once every 5 years do regional monitoring surveys to get big picture – take a year off the routine effort
    - $3M in 94, 12 organizations
    - $8M in 98, 62 organizations
    - $9M in 03, 66 organizations
- These organizations are participating on a voluntary basis - doesn't require permit change

- Majority of monitoring is done by permittees
- Random, probability based sampling, similar to EMAP (Environmental Mapping and Assessment Program) designed to answer "spatial extent of problem" and multiple indicators at each site (sediment chemistry, toxics, benthic, fish tissue contaminants, gross pathology, biomarkers) – they do not preselect sites. Doesn't point at individual outfalls.
- Stratifications include – river mouths; small & large POTW outfalls; buys/harbors, national marine sanctuary, Mexican coastal waters
- Each time they add in special efforts – for example, endocrine disruptors in fish

Products of Regional Monitoring Program

- Assessment of condition—least important product
- Cumulative distribution function (CDF) gives percent of sites with certain levels of contaminant -– allows comparison from other year's data from other studies (put your data point in context of CDF) – offers perspective
    - Helps with prioritization
    - Identifies all the worst spots? Helps define worst 10% (impacted) and best 10% (reference)
    - Most often done by subpopulation -- % of area in each subpopulation vs. % of contaminant mass (6% of area is bays/harbors but has 35% of mercury – focus there; Publicly Owned Treatment Works (POTWs) have high DDTs, Polychlorinated Biphenyls (PCBs) relative to their area)

Methods standardization—most important product

- Methods manuals to make sure everyone's using the same equipment and methods
- Dischargers help write the manuals, Dischargers and regulators help writing methods manuals; people then adopt these; fear was that methods would devolve to the lowest common denominator, actually everyone uses this to justify improvements. Ensures greater compliance
- Regulated agencies tended to upgrade equipment and methods, rather than opt for lowest common denominator
- Lab intercalibration exercises (there are 26 labs in So Cal)
    - Critical aspect of SCWWRP's effort
    - Found that most of the lab errors were transcription errors. 20% of the failures were due to poor QA/QC (Quality Assurance/Quality Control)
    - Examples of successes:
        - CA was first state to approve IDX method for enterococci, was adopted at all participating labs. Labs participated so could agree with new methodology; errors pointed out weak methods/labs – most errors are data transcription problems and programs fix data management
        - Lab results varied widely for sediment Polycyclic Aromatic Hydrocarbons (PAH), 137 to 2300 for sum from different labs; every parameter 10 to 100-fold difference —it took a year to fix this (new range was 1296 to 1748) - one group does extracts

Other product – Regional Assessment Tools

- Get players together so we make sense of how to interpret data. For example, their work to get Sediment Quality Criteria is reliant on working together on the technical foundation (how to relate chemistry, toxicology and biology?)
- SCCWRP gets data from 66 organizations

- Easy, once you get standardization of methods, agreement of how to interpret data
- Biocriteria development—how to interpret?
- Opportunity to dialog in a non-regulatory setting

Information management

- Sharing data is now a "piece of cake," once you get standardization of methods, agreement of how to interpret data
- Dialogue – see all above – ACTUALLY THIS IS the KEY PRODUCT for cooperative regional monitoring

Catalysts

- A common question for which you need each other and have an audience for the answer (SCCWRP commission = CEOs, general managers) who will act on the answers
    - Example of a common question--What percentage of the Bight is impaired?
- Money
    - Available resources, most work done by research exchange ('03 work was only $200K cash so most is by resource exchange)
        - Seed money
- Technical expertise (SCCWRP)
- Perception of likely success— first time lots of skepticism; later players don't want to be left out; keys are continuity and prior success
- Leadership organization is neutral– not just regulators or permittees

Challenges

- Time is the major challenge = interminable meetings; core oversight + many subcommittees + many cross-cutting groups
- Flexibility/Willingness to change – I have an investment in one approach and can't change (On the positive side—offers good opportunity to upgrade)
- Intercalibration costs are high—largest expense. Survey sample processing is cost neutral but meetings and intercalibration swamp those costs
- Loss of autonomy - some managers too invested in their own programs; data interpretation especially hard

Growing the program:

- SCCWRP has been expanding to new habitats, adding new partners (initially on an ad hoc, case by case basis)
- Addressing new questions
    - Beach monitoring, big concern due to recreational use in CA; new focus on other areas—How far from storm drains do pollutants go?
    - How far offshore do stormwater plumes extend – this is a question but also an opportunity to see if remote sensing is helpful
    - Mass balance of contaminants – sediment, water, biota (this is showing need to expand geographic extent); this has led them to radio dating and other new methods
    - Beach monitoring – supported refocus of management (we don't have a beach problem, we have a storm drain problem)
    - Adding – wetlands, stream systems (Chris Crompton (see below) is involved in this effort)

Institutionalizing the program – Permits have 3 phases:

- Core (compliance monitoring)
- Regional monitoring – a level of effort, not defined in the permit
- Special studies to investigate what we've learned – suggested by regulators to regulated community

Audience Questions to Steve Weisberg:

1. *Q. How do you assess spatial and temporal scope? How do you answer – is it getting better or getting worse? ?* A. Need to prioritize questions—this one not a top priority right now; you get answer over time. SCCWRP is radio dating top 2 cm sediment at 30 random sites throughout Bight. This should help answer these temporal questions.

2. *Q. Freshwater/stream monitoring?* A. SCCWRP is just beginning to monitor streams

3. *Q. How much does the monitoring cost and where does the $ come from?* a) SCCWRP member organizations contribute annual funding (dues) totaling about $1.5M. b) External contracts and grants - research especially - provide $3.5 mil more and $2 mil for outside projects. c) Every 5 years monitoring effort costs $8 mil – but only $600K in cash, other is in permittees ongoing investments and part is cash from fines. d) Commercial (e.g., Chevron) participants —SCCWRP is a JPA so private companies can't be part of base structure.

4. *Q. How do dischargers get over fear of hanging themselves with their own data?* A. Initially did not try to convince everyone. Small core group was successful after first year. Others followed after initial success. Fear of being left out of the process is worse.

5. *Q. Do programs change to conform to SCCWRP?* A. Yes, sometimes

6. *Q. Is the JPA stable?* A. Only open to governmental agencies. Current size is manageable and still flexible. Since base contributions are about 30%, organization is relatively autonomous

7. *Q. Transboundary issues?* A. SCCWRP does limited work with the military. Military bases provide reference sites because they are relatively undeveloped

MIKE CONNOR
Executive Director, San Francisco Estuary Institute

History of SFEI's Regional Monitoring Program

- Regional Monitoring Program (RMP) funding allows for regional surveys every year
- History: Resolution of San Francisco Water Quality Control Board (a state agency) which gave the choice of taking part (for a small fee) in the program or doing it yourself - "if you join we'll try to make it cost neutral." Payment goes directly to Institute.
- Collaborative of dischargers – Municipalities, Wastewater dischargers, stormwater agencies, dredgers, cooling water dischargers, etc. All join
- $3.4M annual (44% municipalities, 23.5% stormwater, industrial 11%, cooling water 4%). Started in 1993 at $1M at a time of little support (no one particularly wanted to participate and required "stick" rather than carrot from SWRCB)

Evolution, successes and challenges

- Like SCCWRP SFEI's program has grown into many more things so now Regional Monitoring Program is about ½ of their effort. (SCCWRP's program is about 20% of their overall program)
- One measure of success—peer reviewed scientific literature, but this is NOT the only measure
- Best accomplishment—data is trustworthy, the form and structure allow participants to agree.
- Evaluator considers timely synthesis and integration as SFEI's weak points
- Started with "Water Board needs regional data" but NOW it's our program and we can trust the data; has influence in Water Board hearings (TMDLs, permits) – a feedback loop has evolved
- Core element of program is Status & Trend and have added in pilot and special studies
- One issue – if data are high quality they should be in scientific literature

Success through Governance

- 70-member steering committee (SFEI is their staff)
- Environmental community is hooked in
- 3 work groups with quarterly meeting below a technical review committee that also meets quarterly
- RMP annual meeting

Success through Relevance - Six major objectives

- Objective 1 describe distribution and trends of pollutant concentrations in the estuary
    - Polychlorinated Biphenyl (PCB) study in mussels best example of temporal trends
    - Data used in 303d list so SFEI has changed their design to a stratified random sampling (EMAP type design).
    - Data help set priorities rather than "hang" people. Don't look too near-field. Coordination has the advantage of helping the different players set priorities—once agreement is reached on the real data. There are already enough data to hang people; the need is to put it together for a coherent decision about what to work on.

    - California banned Polybrominated Diphenyl Ethers (PBDEs) based on this monitoring research
    - PAHs shifted from High (200) to Low (2005) on list of management priorities for restoring the chemical integrity of water; pyrethroid have replaced organophosphate pesticides (sediment toxicity problem with new chemical that replaced water toxicity of old chemicals)
- Objective 2—Project future contaminant status
    - Box models help with this
- Objective 3—describe sources, pathways and loading of pollutants entering the Estuary
    - Guadalupe River; Mallard Island – this has changed perception about relative sources: thought major rivers delivered most suspended sediments, mercury, and PCBs but now they understand that smaller urban tributaries deliver these contaminants, especially in the southern part of the Bay
- Objective 4—measure pollution exposure and effects on biota
    - Regional Monitoring Program shows problems in South Bay are similar to the Delta (but not from river source)
- Objective 5—Compare monitoring information to relevant benchmarks compare to relevant benchmarks such as water chemistry & toxicity; sediment chemistry & toxicity, sport fish, Total Maximum Daily Load (TMDL) targets
- Objective 6—effectively communicate information from a range of sources
    - Biggest issue - Be Useful or Be Useless; stay relevant
    - Most people just like to look at pictures
    - *Pulse of the Estuary* publication - contains about 40 pages of graphics; web site
    - 10 year synthesis, special issue in *Environmental Research*
    - Annual meeting—more than just steering committee and technical workgroups
    - Workshops—PAHs, pyrethroid insecticides

3Cs—Coordinate, Collaborate, Communicate

- Questions SFEI has addressed in the past
    - How do pollutant levels compare to guidelines (1998)
    - What should our cleanup goals be (2004)
- SFEI new questions
    - Can we extrapolate from local studies to system-wide effects? (also being addressed by Eric Stein at SCCWRP)
    - Reevaluation of standards for status and trends monitoring
- Success through Trust
    - Data verification, intercomparison, QA/QC, etc.
    - Transparency and 5-Year outside peer reviews
    - Easily accessible date—tool for adaptive management (SQL to help people find the data they need)

Comparable regional monitoring approaches elsewhere - Chesapeake Bay Program (gets $35 M from Congress), Massachusetts Water Resource, New York-New Jersey- Connecticut Sanitation Authority

- Similar governance—institutional lead, environmental group inclusion, budget
- Similar design elements—stratified random sampling (EMAP approach), work on indicators, model feeding, performance measures, research studies (based on core results), emphasis on sources, status, and effects
- Notes on comparison of programs

- Environmental community is part of RMP structure; MA (where big POTW is lead) and have oversight group that includes environmental community
- Cost is $1M-$10M -- $1 per person?
- Modeling drives MA and heavily committed to in CHB; NY-NJ-CT still using axis of Bay (old design) – stuck with equipment
- Nonpoint source loads only being done at SFEI and CHB
- Special studies and research: most at SCCWRP and least at NY-NJ-CT (which to do? When to start & stop?)
- MA has 50 specific predictions about how discharge would maintain health of Bay; so measures are related to condition related to those predictions; CHB reliant on Pressure-State-Response

Audience Questions to Mike Connor:

1. *Q. What is the relation of SFEI to Brake Pad Partnership (group concerned with copper)?* A. Bay is listed for copper; thought to come from Highway Runoff - from grinding of brakes; SFEI is working with them on this; RMP stops at head of tide; stormwater agencies are hardest to get to join RMP.

2. *Q. How long did it take to reevaluate and redesign the program?* A. About 1 year

3. *Q. What are advantages to regional monitoring?* A1. Shared QA/QC. RMP managed by SFEI and subcontracted to others with operating labs (could be members) – do all data management; QA, and synthesis. If you get a lab you have to keep it running.

   A2. Most angry members are those that can't see the relationship between what's in the RMP and what's in the permit. RMP has had difficulty with Endangered Species Act fish listings—NOAA does not participate in RMP; NOAA lab yes, but not NOAA regulators. Not making links to essential fish habitat, and all parts of NOAA (20 people from 13 sites) so management questions are not driven by NOAA's interests/needs.

   A3. Another advantage—gives opportunity to think grander thoughts "big picture."

   A4. If people were working from the same factual basis, (pollyannish, hopeful) In actuality people are able to take action – they don't forego right to sue, etc.

CHRIS CROMPTON
Chair, Southern California Monitoring Coalition and Manager, Environmental Resources, County of Orange, CA

Orange County Stormwater Program

- Orange County is a discharger; a member of SCCWRP; a paying member of regional monitoring surveys

- 36 permittees in Area-wide stormwater permit where County is the principal permittee (11 watersheds)
- Implementation agreement underpins the program; shared budget of $6M annual covers program management, monitoring, and public education (3M people in Orange County)
- "Glue" for program: 2003 Drainage Area Management Plan- program effectiveness assessment. Principle policy and guidance document for NPDES permit.

Stormwater Monitoring Coalition

- Goal is to develop the technical information.
- Created local implementation plan
- Committee structure
    - Engages city managers and elected officials
    - Public works directors (mostly on technical committees)
    - Other technical experts
    - Participants include all water boards (regional boards of the state agency),
- Created a multi-party agreement; 5-year initial time frame; initial project is assessment of research/monitoring needs; subsequent projects overseen by a steering committee of SMC members

Assessment of needs – white paper outlining technical issues and management questions of interest; SCCWRP managed process of discussing; 50 ideas distilled to 15; 15 are in 3 categories

- Regional Stormwater monitoring infrastructure – some data weren't being used - can we mine existing data? Sampling and analysis plan.
- Stormwater mechanisms and infrastructure—getting ahead of the curve, improvement of conceptual model through evaluation of reference conditions, beneficial uses, relative contribution of different sources
- Receiving water impacts – tools for assessing conditions (bioassessment, toxicity testing, rapid microbial testing, microbial source tracking, peak flow impacts)
- Issue in Steering Committee – letting streams be streams rather than developing right up to the edge and then having to engineer solutions.
- Final product = February 2002 report on stormwater research needs

Project selection - How to get slow moving agencies to work together

- Meet quarterly to discuss projects and progress. Projects selected by consensus (more than one party constitutes consensus, if others don't agree, they don't participate)
- Key aspect - Not all Stormwater Monitoring Coalition members have to participate in all projects
- Outside agencies may sometimes participate in projects – projects have their own set of players/participants not bounded by Stormwater Monitoring Coalition agreement, etc.
- A lead agency is identified to manage each project. Sometimes this is SCCWRP, but not always. LID project will be managed by San Bernardino County
- Agreements are executed to fund each project individually– Attorneys sometimes make this difficult.
- Over $1M of projects funded to date from SMC and other sources:
    - Project #1: Standardized sampling and analysis (define monitoring questions of interest; assess current monitoring programs; create an optimum design. Conduct initial lab intercalibration—due to problem with lowest bidder having poor quality. Lab intercalibration takes care of that

- #2: Microbial source tracking – evaluate new MST methodologies to discriminate human versus non-human sources. No method was perfect but host specific PCR worked best.
- #3: Peak flow impacts – Establish connection between impervious surface and physical condition of streams. Create stream classification system; results. Developed sites were unstable (a distinct west coast phenomenon)
- #4—Freshwater Bioassessments. Regionally consistent bioassessment monitoring program (methods standardization; calibrating and validating a regional assessment tool, designing and implementing an integrated, coordinated regional program. A unique opportunity to start a program from scratch without the baggage of existing approaches.
- #5- Lab intercalibration

Plans for the next 5 years

- SMC plans to extend cooperative agreement
- 5 new organizations want to join (CalTrans, EPA Region 9, City of LA, State water rights control board, Cincinnati EPA)
- Update the research needs report
- Follow up on previous studies. Add toxicity and organics components to the intercalibration program
- Development of a web based structure for watershed management (CalSWIM—Wikipedia type approach)

Other regional approaches

- Stormwater Quality Standards Task Force – science and policy not just science and permit; cost about $1M to date – collaborative program to look at recreational beneficial uses and WQ objectives in the basin plan; funding agreement between counties (Orange, SB, Riverside) and the Santa Anna Watershed Project Authority (they committed 0.5 FTE?); includes regulatory agencies & NGOs; accomplishments include assessment of existing data, camera survey of recreational uses, investigated the background of EPA guidance & its flexibility; basin plan amendments expected in 2007
- CA Stormwater Quality Association -- 501c3 organization funded by members at rate based on discharger size; key accomplishments – meetings and conferences; comments on regulatory documents; scientific and policy studies e.g., guidance on program effectiveness; coordination on key statewide issues such as numeric standards; CA BMP manuals; next conference in fall 2007; could be good model for association in WA

Collaboration is essential in stormwater management

- Cities and counties were not created with consideration of watershed boundaries
- Water always runs downhill across boundaries if necessary
- Multiple parties grappling with the same issues and questions (share resources to address common problems)
- Collaboration occurs at many levels – watershed, county, region, statewide; many models (cooperative agreements, JPAs, Non governmental organizations, foundation), size of budget and collaboration affects (loss of) control.
- Easiest way to get together is not to be threatening – allow people to opt in/out; people don't want to give up authority.

Audience questions to Chris Crompton:

1. *Q. How do you assess program effectiveness?* A. Significant draft available at end of 2006 and finalized in early 2007

2. *Q. How do prevent free riding by non-active but participating organizations.* A. Electeds buy-in, get $ in later FY, but they just accept no as an answer.

3. *Q. Does CalTrans participate?* A. They are a member of California Stormwater Quality Association (CASWQA) and are proposing to be part of SMC. They have invested a lot and set the course forward a while back when they developed relationships with universities. SCCWRP also answered: CalTrans not a strong collaborator; not first group to involve.

Afternoon Session

Audience comments with responses from our speakers' panel addressing these questions and more:

- What are common elements of success of the three models and could these be applied to Washington?
- What challenges are anticipated for Washington's program and what can we do to overcome those challenges?
- *What other issues should be considered? Example topics to discuss: scale, phasing, funding.*

What are the common elements of success of the three models and could these be applied to Washington?

- Emphasis on receiving water monitoring
- Driven by management rather than science (What do we need to do, e.g. about stormwater? What are our goals in a watershed? What makes sense to do?)
- Integration of science-management in coastal urban areas (e.g., NRC book on Managing Wastewater in/for Coastal Urban Areas). Ecosystem based management.
- Collaborative, multi-institutional. All players need each other.
- Recognized that not all have to participate to get started.
- Credible organization (implementer, contractor)
- Don't need a new organization. Monitoring function assigned to existing organizations: SFEI was a science arm of the NEP organization before RMP; SCCWRP was there for years before regional monitoring surveys
- Evolving structure, studies, designs, etc.
- Money needed (cost neutral may not be relevant in WA)
- Perceived benefits are recognized (by different entities in the example programs)
- Time commitment. Sometimes necessary to reprioritize.
- Charismatic leadership or some other form of leadership (SF RMP needed leadership at the Water Boards; self-interest or demand could provide this)

- Independent of state mandate (but legislature has come around to support & build upon these examples)
- Legislation can improve standardization, relevance and usefulness
- Trust is important—trust among stakeholders, regulators, trust in process, data reliability
- A real or perceived distance between monitoring & research and the regulatory process
- Perceived benefits recognized by all participants. Benefits at many levels: policy makers and lab managers/staff
- Regional programs that are not statewide work best. Need buy-in from stakeholders that care about the region with common questions. Good to have geographic focus where there are common questions/concerns
- Protection of beneficial uses—recreational in CA, salmon and shellfish in WA
- Limited scope at inception
- Questions/findings are not focused on individual discharges
- Spent time articulating the questions; then figured out how to answer them
- Saw and responded to writing-on-the-wall
- Succeeded with early efforts and grew from there
- Non-threatening
- Short time scale for commitment

Managing Waste Waters in Coastal Urban Areas by Alan Mearns, published by the National Science Foundation—worth reading

What challenges are anticipated for Washington's program and what can we do to overcome these challenges?

- Cost neutral may not be relevant here; assess the current situation to decide if we are looking for new types of monitoring or are we looking to do existing work better?
- Disconnection between Puget Sound Ambient Monitoring Program (PSAMP) (strong on status & trends but weak on responses to "red flags" and program effectiveness, compliance) and regulatory monitoring (pieces are there but need to work together)
- Not ready to start out too big. Building something at the Puget Sound relevant scale/scope (not starting too small) -- commit agency resources to Puget Sound synthesis (ambient + beyond; bigger than Puget Sound Action Team publications) or have this be a first project; start small to develop quick successes
- In(Decision) about receiving water monitoring as requirement in municipal stormwater permit
- Need Endangered Species Act and Clean Water Act coordination (address by focus on protecting beneficial uses)
- Bringing resource agencies into the organization, process (easier at inception than later)
- Two choices to get going:
    - Regulatory agencies and stormwater agencies get together proactively and not wait for a legal mandate
    - Could be driven by review/critique of existing monitoring from an outside group as one way of getting attention (Are the existing programs address the problems facing Puget Sound? Are they helping with solutions?) – create a white paper on what needs to be done
- Infighting means we don't have "joint power";
- Long-time frame needed for results
- Example organizations in our state/region are competitive not collaborative
- Perceived fairness of cost allocation among stakeholders

- Information might lead to unintended consequences – Orange County example points out need to have strong relationships among the players
- Getting buy-in at the highest levels (agency heads) – SCCWRP example was having EPA Regional Administrator support.
- State lab accreditation is no substitute for lab intercalibration. Current laboratory performance accreditation assures that labs have capability; users have responsibility to assure quality
- Uncertainty about whether receiving water monitoring can provide information about program effectiveness (see CASWQA report for a few examples; smelter on Harbor Island; Copper abatement in 1980s)
- Science requires an interdisciplinary collaboration—there can be cultural differences between disciplines. One solution is to develop forums for conversation
- Possible battles over data/science, although other scientists/labs can be found to do the work. Could also be addressed by peer review; review committees (including sector liaisons)
- Lack of prominence of monitoring in Puget Sound Partnership's draft recommendations
- Scientific issues are relatively easy. It's people issues that are tough. Impediments are rarely technical.
- Program effectiveness: Can receiving water monitoring provide information about program effectiveness?

What other issues should be considered? Example topics to discuss: scale, phasing, funding.

- National Marine Fisheries Service, Northwest Fisheries Science Center
- Importance of communicating (i.e. *Pulse of the Estuary*)

Closing comments by Jay Manning, Director, WA Department of Ecology:

- Underneath it all is the science – how are we doing? Where are the signals and what are they telling us? Then, connection to regulation

- What happened at Puget Sound Partnership has happened many times before. Monitoring, data management, research falls to the bottom – even if prior discussions and underlying interests have clearly stated the need a base of information. We neglect the foundation of the house.

- Governor's GMAP forces us to ask questions such as: do sewage treatment plants control toxics? What's the result of spending this money on this program? We can't answer now so it's hard to win more money.

- We need to better integrate academia into our approach

- We haven't done enough and we have to
  - be more coordinated
  - enlist academia

- improve our systems to develop, extend the baseline

- Request to assembled group: deliver to him the best, most cost-effective system we can and Jay will try to make it happen. Destroy, run over, remove the lines that divide us.